IN THE CLAIMS

The following claim listing replaces all prior listings and versions of the claims:

LISTING OF CLAIMS

Claim 1. (Canceled)

2. (Currently amended)   A trick play method for achieving a trick play mode with a digital storage medium used to record and reproduce multimedia content including compression coded digital audio and video data, the digital storage medium ~~recording~~ comprising

a directory segmenting the content into program~~s~~ ~~units~~, further segmenting the content into a plurality of media object~~s~~ ~~units~~, and recording each media object ~~unit~~ as a separate file,

a program manager file storing a table ~~containing~~ including an identifier (ID) for each program of recorded content and information about the media objects in each program,

a media object information file storing a table ~~containing~~ including playback time information and entry points at a specific time interval for each media object,

a playlist manager file ~~containing~~ comprising playlist information including a user-specified playback start program ID and [[the]] a specified playback start time and end time of [[said]] a program[[;]].

a management data file ~~containing~~ including a resume marker ~~consisting of~~ comprising a program ID for a program where playback was last interrupted and playback interrupt time where playback was interrupted in the program[[;]].

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the trick play method achieving a fast-forward play mode when the user selects fast-forward play, the trick play method comprising ~~by~~:

reading [[the]] a media object information in [[the]] a program specified by [[the]] a resume marker in sequence from the beginning;

sequentially comparing [[the]] a playback time in the media object information with [[the]] an interrupt time to detect media object k where [[the]] a cumulative playback time first exceeds the interrupt time;

detecting [[the]] an entry point identified by a number determined by calculating the difference of the interrupt time specified by the resume marker minus [[the]] a total playback time to [[the]] an immediately preceding media object, and dividing this difference by [[the]] a time search table resolution in the media object information of media object k;

reading and supplying, to [[the]] a decoder, entry frame data for [[the]] a media object data ~~unit~~ corresponding to said entry point;

~~thereafter~~ repeating the above steps to supply entry frame data for [[the]] a next media object data ~~unit~~ to the decoder; and

rewriting the resume marker when fast-forward play ends with the program ID of the program at which playback is interrupted and the interrupt time in said program.

3. (Currently Amended)   A trick play method for achieving a trick play mode with a digital storage medium used to record and reproduce multimedia content including

compression coded digital audio and video data, the digital storage medium ~~recording~~ comprising

a directory segmenting the content into program~~s~~ units, further segmenting the content into a plurality of media object~~s~~ units, and recording each media object ~~unit~~ as a separate file,

a program manager file storing a table ~~containing~~ including an identifier (ID) for each program of recorded content and information about the media objects in each program,

a media object information file storing a table ~~containing~~ including playback time information and entry points at a specific time interval for each media object,

a playlist manager file ~~containing~~ comprising playlist information including a user-specified playback start program ID and [[the]] a specified playback start time and end time of [[said]] a program[[;]],

a management data file ~~containing~~ including a resume marker ~~consisting of~~ comprising a program ID for a program where playback was last interrupted and playback interrupt time where playback was interrupted in the program[[;]],

the trick play method achieving a fast-reverse play mode when the user selects fast-reverse play, the trick play method comprising ~~by~~:

reading [[the]] a media object information in [[the]] a program specified by [[the]] a resume marker in sequence from the beginning;

sequentially comparing [[the]] a playback time in the media object information with [[the]] an interrupt time to detect media object k where [[the]] a cumulative playback time first exceeds the interrupt time;

detecting [[the]] an entry point identified by a number determined by calculating the difference of the interrupt time specified by the resume marker minus [[the]] a total playback time to [[the]] an immediately preceding media object, and dividing this difference by [[the]] a time search table resolution in the media object information of media object k;

reading and supplying to [[the]] a decoder entry frame data for [[the]] a media object data ~~unit~~ corresponding to said entry point;

thereafter repeating the above steps to supply entry frame data for [[the]] a preceding media object data ~~unit~~ to the decoder; and

rewriting the resume marker when fast-forward play ends with the program ID of the program at which playback is interrupted and the interrupt time in said program.

4. (Currently Amended)   A playback method for reproducing multimedia content from a digital storage medium starting from a playback start time, the digital storage medium recording multimedia content ~~consisting of~~ comprising compression coded digital video data segmented into programs ~~units~~, each program ~~unit~~ segmented into media objects ~~units~~, and each media object ~~unit~~ segmented into media object data ~~units~~ ~~MODU~~ of which the first frame is a reproducible entry frame; and

recording management information including a time search table defining a time search entry at each specific time interval [[ΔT]] from a beginning of each media object, a playback time for each media object, and a playback start time for a specified program,

the time search table ~~containing~~ including an offset [[OF]] indicating a data length from a beginning of the specified program to a beginning of a media object data ~~unit MODU containing~~ including the time search entry, and a frame count [[FN]] indicating a number of frames from the beginning of the media object data ~~unit MODU~~ to the time search entry;

the playback method reproducing content from the playback start time in a playback mode, the playback method comprising ~~by means of~~:

~~steps (S3 to S6) for~~ detecting [[the]] a media object at [[the]] a playback start time by sequentially subtracting [[the]] a playback time of each media object from [[the]] a playback start time starting from [[the]] a first media object, and comparing [[the]] a resulting difference with [[the]] a playback of [[the]] a next media object;

~~steps (S7, S8) for~~ detecting a time search entry closest before the playback start time and [[the]] a remaining time from said time search entry to the playback start time using said resulting difference and [[the]] a specific time interval [[ΔT]];

~~steps (S9, S10) for~~ accessing ~~to the~~ a data offset in [[the]] a specified program based on [[the]] a time search table of the detected time search entry;

~~steps (S9, S11) for~~ decoding [[the]] a ~~frame count~~ [[FN]] number of counted frames from [[the]] an accessed point based on the time search table of the detected time search entry;

~~steps (S12, S13) for~~ continuing decoding for [[the]] a remaining time; and

~~steps for~~ displaying the decoded result ~~on screen~~ after the remaining time passes.

5. (Currently Amended)   A playback method ~~as described in~~ according to claim 4, wherein the playback start time is a playback start time edited and specified by a user.

6. (Currently Amended)   A playback method ~~as described in~~ according to claim 4, wherein the playback start time is a playback start time specified by a resume marker containing time information indicating where playback was interrupted.

7. (Currently Amended)   A playback method for reproducing multimedia content from a digital storage medium starting from a playback start time, the digital storage medium recording multimedia content ~~consisting of~~ comprising compression coded digital video data segmented into programs ~~units~~, each program ~~unit~~ segmented into media objects ~~units~~, and each media object ~~unit~~ segmented into media object data ~~units~~ MODU of which the first frame is a reproducible entry frame; and

recording management information including a time search table defining a time search entry at each specific time interval [[ΔT]] from a beginning of each media object, a playback time for each media object, and a playback start time in a specified program,

the time search table ~~containing~~ including an offset [[OF]] indicating a data length from a beginning of the specified program to a beginning of a media object data ~~unit~~ MODU ~~containing~~ including the time search entry, and a frame count [[FN]] indicating a number of frames from the beginning of the media object data ~~unit~~ MODU to the time search entry;

the playback method reproducing content from near the playback start time in a fast-forward play mode, the playback method comprising ~~by means of~~:

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~~steps (S3 to S6) for~~ detecting [[the]] a media object at [[the]] a playback start time by sequentially subtracting [[the]] a playback time of each media object from [[the]] a playback start time starting from [[the]] a first media object, and comparing [[the]] a resulting difference with [[the]] a playback of [[the]] a next media object;

~~steps (S7, S8) for~~ detecting a time search entry closest before the playback start time using said resulting difference and [[the]] a specific time interval [[ΔT]];

~~steps (S22) for~~ accessing ~~to the~~ a data offset position in [[the]] a specified program based on [[the]] a time search table of the detected time search entry;

~~steps (S23, S24) for~~ decoding an entry frame at which playback can start at the accessed data offset position and displaying [[the]] a decoded content;

~~steps (S26) for~~ detecting a next time search entry;

~~steps (S22) for~~ accessing ~~to the~~ a next data offset position in the specified program based on the time search table of the detected next time search entry; and

~~steps (S23, S24) for~~ decoding [[an]] a next entry frame at which playback can start at the next accessed data offset position and displaying the decoded content.

8. (Currently Amended)   A playback method for reproducing multimedia content from a digital storage medium starting from a playback start time, the digital storage medium recording multimedia content ~~consisting of~~ comprising compression coded digital video data segmented into programs ~~units~~, each program ~~unit~~ segmented into media objects ~~units~~, and each media object ~~unit~~ segmented into media object data ~~units~~ ~~MODU~~ of which the first frame is a reproducible entry frame; and

recording management information including a time search table defining a time search entry at each specific time interval [[ΔT]] from a beginning of each media object, a playback time for each media object, and a playback start time in a specified program,

the time search table ~~containing~~ including an offset [[OF]] indicating a data length from a beginning of the specified program to a beginning of a media object data ~~unit~~ ~~MODU containing~~ including the time search entry, and a frame count [[FN]] indicating a number of frames from the beginning of the media object data ~~unit MODU~~ to the time search entry;

the playback method reproducing content from near the playback start time in a fast-reverse play mode, the playback method comprising ~~by means of~~:

~~steps (S3 to S6) for~~ detecting [[the]] a media object at [[the]] a playback start time by sequentially subtracting [[the]] a playback time of each media object from [[the]] a playback start time starting from [[the]] a first media object, and comparing [[the]] a resulting difference with [[the]] a playback of [[the]] a next media object;

~~steps (S7, S8) for~~ detecting a time search entry closest before the playback start time using said resulting difference and [[the]] a specific time interval [[ΔT]];

~~steps (S22) for~~ accessing ~~to the~~ a data offset position in [[the]] a specified program based on [[the]] a time search table of the detected time search entry;

~~steps (S23, S24) for~~ decoding an entry frame at which playback can start at the accessed data offset position and displaying [[the]] a decoded content;

~~steps (S26) for~~ detecting a previous time search entry;

~~steps (S22) for~~ accessing ~~to the~~ a next data offset position in the specified program based on the time search table of the detected time search entry; and

~~steps (S23, S24) for~~ decoding an entry frame at which playback can start at the <u>next</u> accessed data offset position and displaying the decoded content.

9. (Currently Amended)   A playback apparatus for reproducing multimedia content from a digital storage medium starting from a playback start time, the digital storage medium recording multimedia content ~~consisting of~~ <u>comprising</u> compression coded digital video data segmented into program<u>s</u> ~~units~~, each program ~~unit~~ segmented into media object<u>s</u> ~~units~~, and each media object ~~unit~~ segmented into media object data ~~units~~ ~~MODU~~ of which the first frame is a reproducible entry frame; and

recording management information including a time search table defining a time search entry at each specific time interval [[ΔT]] from a beginning of each media object, a playback time for each media object, and a playback start time for a specified program,

the time search table ~~containing~~ <u>including</u> an offset [[OF]] indicating a data length from a beginning of the specified program to a beginning of a media object data ~~unit~~ ~~MODU containing~~ <u>including</u> the time search entry, and a frame count [[FN]] indicating a number of frames from the beginning of the media object data ~~unit~~ ~~MODU~~ to the time search entry;

the playback apparatus comprising:

~~means (S3 to S6)~~ <u>a media object detector configured to detect a</u> ~~for detecting the~~ media object at [[the]] <u>a</u> playback start time by sequentially subtracting [[the]] <u>a</u> playback time of each media object from [[the]] <u>a</u> playback start time starting from [[the]] <u>a</u> first media object, and comparing [[the]] <u>a</u> resulting difference with [[the]] <u>a</u> playback of [[the]] <u>a</u> next media object;

~~means (S7, S8)~~ <u>a time search entry detector configured to detect</u> ~~for detecting~~ a time search entry closest before [[the]] <u>a</u> playback start time and [[the]] <u>a</u> remaining time from said time search entry to the playback start time using said resulting difference and [[the]] <u>a</u> specific time interval [[ΔT]];

~~means (S9, S10)~~ <u>an accessor configured to access a</u> ~~for accessing to the~~ data offset in [[the]] <u>a</u> specified program based on [[the]] <u>a</u> time search table of the detected time search entry;

~~means (S9, S11, S12, S13)~~ <u>a frame count decoder configured to decode</u> ~~for decoding~~ the frame count [[FN]] <u>number of frames</u> from [[the]] <u>an</u> accessed point based on the time search table of the detected time search entry ~~and decoding the remaining time~~; and

~~means for~~ <u>a display configured to display a</u> ~~displaying the~~ decoded result ~~on screen~~ after the remaining time passes.

10. (Currently Amended)   A playback apparatus ~~as described in~~ <u>according to</u> claim 9, wherein the playback start time is a playback start time edited and specified by a user.

11. (Currently Amended)   A playback apparatus ~~as described in~~ <u>according to</u> claim 9, wherein the playback start time is a playback start time specified by a resume marker containing time information indicating where playback was interrupted.

12. (Currently Amended)   A playback ~~method~~ <u>apparatus</u> for reproducing multimedia content from a digital storage medium in a fast-forward play mode starting from a playback start time, the digital storage medium recording multimedia content ~~consisting~~

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~~of~~ <u>comprising</u> compression coded digital video data segmented into programs ~~units~~, each program ~~unit~~ segmented into media objects ~~units~~, and each media object ~~unit~~ segmented into media object data ~~units~~ MODU of which the first frame is a reproducible entry frame; and

recording management information including a time search table defining a time search entry at each specific time interval [[ΔT]] from a beginning of each media object, a playback time for each media object, and a playback start time in a specified program,

the time search table ~~containing~~ <u>including</u> an offset [[OF]] indicating a data length from a beginning of the specified program to a beginning of a media object data ~~unit~~ ~~MODU containing~~ <u>comprising</u> the time search entry, and a frame count [[FN]] indicating a number of frames from the beginning of the media object data ~~unit~~ MODU to the time search entry;

the playback apparatus comprising:

~~means (S3 to S6)~~ <u>a media object detector</u> configured to detect a ~~for detecting the~~ media object at [[the]] <u>a</u> playback start time by sequentially subtracting [[the]] <u>a</u> playback time of each media object from the playback start time starting from [[the]] <u>a</u> first media object, and comparing [[the]] <u>a</u> resulting difference with [[the]] <u>a</u> playback of [[the]] <u>a</u> next media object;

~~means (S7, S8)~~ <u>a time search entry detector</u> configured to detect ~~for detecting~~ a time search entry closest before the playback start time using said resulting difference and [[the]] <u>a</u> specific time interval [[ΔT]];

means (S22) an accessor configured to access a for accessing to the data offset position in the specified program based on [[the]] a time search table of the detected time search entry;

means (S23, S24) an entry frame decoder configured to decode for decoding an entry frame at which playback can start at the accessed data offset position and displaying [[the]] a decoded content; and

means (S26) a next time search entry detector configured to detect for detecting a next time search entry.

13. (Currently Amended)   A playback method apparatus for reproducing multimedia content from a digital storage medium in a fast-reverse play mode starting from a playback start time, the digital storage medium recording multimedia content consisting of comprising compression coded digital video data segmented into programs units, each program unit segmented into media objects units, and each media object unit segmented into media object data units MODU of which the first frame is a reproducible entry frame; and

recording management information including a time search table defining a time search entry at each specific time interval [[ΔT]] from a beginning of each media object, a playback time for each media object, and a playback start time in a specified program,

the time search table containing including an offset [[OF]] indicating a data length from a beginning of the specified program to a beginning of a media object data unit MODU containing comprising the time search entry, and a frame count [[FN]] indicating

a number of frames from the beginning of the media object data ~~unit MODU~~ to the time search entry;

 the playback apparatus comprising:

  means ~~(S3 to S6)~~ a media object detector configured to detect a ~~for detecting the~~ media object at [[the]] a playback start time by sequentially subtracting [[the]] a playback time of each media object from [[the]] a playback start time starting from [[the]] a first media object, and comparing [[the]] a resulting difference with [[the]] a playback of [[the]] a the next media object;

  means ~~(S7, S8)~~ a time search entry detector configured to detect ~~for detecting~~ a time search entry closest before the playback start time using said resulting difference and [[the]] a specific time interval [[ΔT]];

  means ~~(S22)~~ an accessor configured to access a ~~for accessing to the~~ data offset position in the specified program based on [[the]] a time search table of the detected time search entry;

  means ~~(S23, S24)~~ an entry frame decoder configured to decode ~~for decoding~~ an entry frame at which playback can start at the accessed data offset position and displaying [[the]] a decoded content; and

  means ~~(S26)~~ a previous time search entry detector configured to detect ~~for detecting~~ a previous time search entry.